REMARKS

Claims 1-28, 30 and 31 are all the claims pending in the application. Claim 29 was previously cancelled.

I. Claim Objections.

The Examiner objects to claims 1, 2, 4-12, 17-21, 22, 24, 25, 26 and 28 due to various informalities as identified in numbered paragraph 1 bridging pages 2 and 3 of the Office Action. Claims 1 and 2 have been amended to address the objections to the claims and Applicant requests that the Examiner enter the Amendment because no new issues are raised and the Amendment places the claims in better condition for appeal.

Claim 1 is amended to more particularly describe the periodicity of left and right pixels in a first direction and forming a left line segment and a right line segment, both lines perpendicular with respect to the first direction. Withdrawal of the objection to claim 1 is respectfully requested and deemed proper.

With respect to claims 2 and 31, the Applicant addresses each of the Examiner's questions in turn (OA page 2). The first instance of perpendicular (distance) is from a most peripheral line segment. Perpendicular is correctly used with respect to a line, or direction. Here the perpendicular distance is measured from a line segment, more specifically from a most peripheral line segment. Said line segment runs perpendicular to a first direction. The line

segments only run in one direction. A finite display has a periphery, for example a top, a bottom and two sides. A most peripheral line segment would therefore be on an outermost edge which was perpendicular to a first direction. As to the perpendicular distance from a most peripheral line segment, the distance is measured from the surface of the display panel in a direction perpendicular to the outermost line segment, which would also be perpendicular to an inner line segment and perpendicular to, normal to the display panel.

Turning to Fig. 7 , we see a distance OD as perpendicular with respect to a direction 11 measured from point 3b to the plane of the viewer's eyes. Because the plane of the viewers eyes and the two dimensional display shown in Fig. 7 are parallel, then the 'OD' distance shown in Fig. 7 at point 3b is in fact the OD distance readily recognized by one of ordinary skill in the art as the normal distance between the display surface and the plane of the viewer. In turn the distance required by claims 2 and 31 would also be the OD distance as recognized by one of ordinary skill in the art, if the viewer plane and display plane are parallel. In light of the discussion above and the amendment to claim 2, Applicant respectfully requests withdrawal of the objection to said claims.

As to the phrase tan(1'), Applicant asserts that one of ordinary skill in the art readily recognizes tan as trigonometric function of sin/cos[1] and readily recognizes 1' as an angle of one

[1] http://www.grc.nasa.gov/WWW/Wright/airplane/trig.html

minute, where 60 minutes equal 1 degree.[2] At this time however tan 1' is amended to its numerical value (0.000291).

As to the phrase ND in claim 4, the distance, ND, is more particularly claimed as the minimum normal distance surface of the display at which three dimensional viewing is possible, and is 213 mm or less. One of ordinary skill in the art would recognize normal as an indication of an orthogonal direction to the display surface plane. ND is supported by the disclosure in the specification, for example Fig. 7. ND is defined as a shortest normal distance from the surface of the optical unit to viewer's eyes wherein three dimensional viewing is possible. Withdrawal of the objection to claim 4 is asserted as being proper and respectfully requested.

II. Claim Rejections.

The Examiner rejects claims 1, 5, 6 and 30 as allegedly being unpatentable over *Momochi* (U.S. Patent No. 5,528,420) in view of *Sandor, et al.* (U.S. Patent No. 5,554,432) ("*Sandor*") under 35 U.S.C. §103(a). Applicant respectfully traverses this rejection.

Claims 1 and 30. *Momochi* teaches refracted light incident upon picture elements B at an angle directed towards the left eye relative to the image normal and refracted light upon picture elements C directed towards the right eye relative to the image normal (Figs. 10, 11 and 13; col. 11, lines 24-55). Images can be printed directly onto a lenticular lens sheet (col. 6, lines 63-65).

[2] http://www.answers.com/topic/minute-of-arc

The pitch of the picture elements is adjusted to coincide with the pitch of the lens, meaning the "pitch" of the lens refracted light (angle Ø). Lens refracted light is then incident upon the image. Light incident upon the lens (angle θ) originates from the viewer's side (Fig. 13; col. 11, lines 40-58). As to "re-emitting" as asserted by the Examiner (OA page 4), *Momochi* provides no such language or teaching. And further "re-emitting" is not an element of applicant's claims, and neither is reflected light.

One of ordinary skill would recognize that *Momochi* teaches a narrow pitch, high definition, lens for use with printing only, and not for electronic display.

In contrast to *Momochi*, claims 1 and 30 require, " . . .an optical unit which consists of a plurality of lenses that refract light *emitted from* the pixels . . ." Claims 1 and 30 require a plurality of lenses which redirect light originating from the image side. *Momochi* fails to teach or suggest an optical unit which consists of a plurality of lenses that refract light emitted from the pixels. *Momochi* fails to teach or suggest the relationship between lens pitch and visibility of a three dimensional image.

Secondary reference *Sandor* teaches the making of a press polymerized lenticular sheet, and therein also fails to teach or suggest an optical unit which consists of a plurality of lenses that refract light *emitted from* the pixels. *Momochi* and *Sandor*, alone or in combination, fail to teach or suggest, " . . . an optical unit which consists of a plurality of lenses that refract light

emitted from the pixels . . ." At least for this deficiency the rejection of claims 1 and 30 as being unpatentable over *Momochi* in view of *Sandor* under 35 U.S.C. §103(a) should be withdrawn.

Claim 1 is asserted as being patentable on second grounds. *Momochi* fails to teach or define visual acuity in relation to three-dimensional viewing. Secondary reference *Sandor* fails to compensate for this deficiency.

In contrast claims 1 and 30 require, " . . . wherein said distance OD is 350mm or less, and said distance OD and said lens pitch L satisfy the following expression:

$L \leqq 2 \times OD \times (0.000291)$."

At least for this deficiency the rejection of claim 1 as being unpatentable over *Momochi* in view of *Sandor* under 35 U.S.C. §103(a) should be withdrawn

Claims 5 and 6 are asserted as being patentable at least by virtue of their dependence upon an allowable claim.

The Examiner rejects claims 1, 5-8, 21, 25, 30 and 31 as allegedly being unpatentable over *Ichinose, et al.* (U.S. Patent No. 4,987,487) ("*Ichinose*") in view of *Sandor* under 35 U.S.C. §103(a). Applicant respectfully traverses this rejection.

Claims 1, 30 and 31. *Ichinose* teaches a pair of R and L pixels having a length or pitch of 2L. L is further defined as .2mm (col. 7, lines 24-37). *Ichinose* teaches each "pixel" constitutes a plurality of micropixels (col. 2, lines 19-25). *Ichinose* specifically teaches, a pair of L and R pixels having a pitch of 0.4 mm.

In contrast, Claims 1, 30, and 31 specifically require, pixel sections each of which include a pixel displaying an image for the left eye and a pixel displaying an image for the right eye, and wherein the optical unit allows the viewer to recognize a three-dimensional image, and the lens pitch of the optical unit is less than 0.2mm.

Sandor teaches a lenticular lens sheet, with a lenticule pitch of 0.102 mm (col. 6, lines 1-7; OA page 6). However, one of ordinary skill in the art would not expect success in combining the pixels taught by *Ichinose* (0.4 mm pitch) with the lenticule pitch of *Sandor* (0.17 mm), as the combination would not yield the desired stereoscopic viewing. *Ichinose* specifically teaches that the pitch of the lenticular lens is set to *slightly* smaller than the pitch of the L/R pixel pair, and teaches a lens pitch of 0.3988 mm corresponding to the pixel pair pitch of 0.4 mm.

Ichinose fails to teach a tighter, smaller pixel pitch. If *Ichinose* teaches anything with respect to a tighter pixel width, *Ichinose* teaches away from a tighter pixel pitch, "if the number of micropixels constituting each L and R pixel can be increased, then the area in the display panel capable of stereoscopic viewing can be expanded over the entire display." (col. 8, lines 49-53). *Ichinose* specifically teaches *increasing the number of components* comprising a single pixel, which is counter intuitive to decreasing pitch, and does not teach or suggest tighter, smaller, pixel pitch.

Ichinose and *Sandor*, alone or in combination, fail to teach or suggest a L and a R pixel, wherein the optical unit refracts the light emitted from the L and the R pixel providing

stereoscopic viewing and wherein the pitch of the optical unit is less that 0.200 mm. At least for this deficiency, the rejection of claims 1, 30, and 31 as being unpatentable over *Ichinose* in view of *Sandor* under 35 U.S.C. §103(a) should be withdrawn.

Claims 5-8, 21, and 25 are asserted as being allowable at least by virtue of their dependence upon an allowable claim.

The Examiner rejects claims 2-4, 9-20, 22-24 and 26-28 as allegedly being unpatentable over *Ichinose* under 35 U.S.C. §103(a). Applicant respectfully traverses this rejection.

Claims 2-4 require minimum or an optimum viewing distance, and viewing position. More specifically, said distances are required to be 213 mm or less or 350 mm or less. The Examiner acknowledges that *Ichinose* fails to teach stereoscopic viewing at these distances (OA page 9). Because the associated physics equations hold true at all distances, the Examiner asserts that the application of these equations to the closer observation distances is obvious over *Ichinose*, which specifically teaches a viewing distance of 500 mm.

Ichinose teaches that *at a distance of 500 mm*, the visible stereoscopic area is 64 mm across, about the distance between the average viewer's eyes (col. 7, lines 36-38). Further as discussed above, *Ichinose* teaches that *if* the number of micropixels for each R and L pixels *can be increased*, then the stereoscopic viewing area can be expanded to the entire display (col. 8, lines 49-53). Ichinose specifically teaches a lenticule pitch of 0.3988 with a L/R pixel pair pitch of 0.4 mm. *Ichinose*, teaches away from close stereoscopic viewing provided by high definition,

closely packed pixels. *Ichinose* suggests expanding the viewing area at a viewing distance of 500 mm by increasing the micropixels in a given L/R pixel pair for a pixel pair pitch of 0.4 mm and fails to teach or suggest a closer stereoscopic viewing distance.

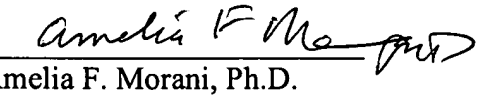
Teaching of optical equations fails to teach or suggest a useful closely viewed stereoscopic display. The equation in and of itself does not teach or suggest a stereoscopic display having L and R pixels with a viewing distance less than 350 mm. *Ichinose* fails to teach or suggest a L and R pixels for stereoscopic viewing at a distance of less than 350 mm. At least for this deficiency, the rejection of claims 2-4 as being unpatentable over *Ichinose* under 35 §103(a).

Claims 5-28 are asserted as being patentable at least by virtue of their dependence upon an allowable claim.

In view of the preceding amendments and remarks, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby earnestly solicited. If there are any points remaining in issue that the Examiner feels may be best resolved through a personal or telephonic interview, she is kindly requested to contact the undersigned at the local telephone number listed below.

The USPTO is directed and authorized to charge all required fees (except the Issue/Publication Fees) to our Deposit Account No. 19-4880. Please also credit any over-payments to said Deposit Account.

Respectfully submitted,



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